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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,070	12/12/2003	Daniel Yap	B-4586NP 621546-7	1271

7590

06/05/2006

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EXAMINER
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ROJAS, OMAR R

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/735,070

Applicant(s)

YAP ET AL.

Examiner

Omar Rojas

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 6,8,10,14-29,35,37,39 and 43-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,11-13,30-34,40-42 and 55 is/are rejected.
- 7) ☒ Claim(s) 7,9,36,38 and 56-58 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on December 12, 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0204</u> . | 6) <input checked="" type="checkbox"/> Other: <u>Detailed Action</u> .                  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Species I in the reply filed on April 27, 2006 is acknowledged. The traversal is on the ground(s) that claim 1, 30, and 55 are generic to Figures 1 and 3-7 and that "[i]n view of the related filed of technology and in view of the expenses that would be imposed upon the Applicants ... the restriction requirements should be issued only when absolutely necessary." See Page 2 of the remarks filed April 27, 2006. This is not found persuasive because:

- a. Applicant(s) do not dispute that Species I-VI are patentably distinct.
- b. Ordinarily, this Examiner has no qualms in searching 2 or even 3 different species as part of a single patent application. Here, however, the Applicant(s) have chosen to claim no less than 6 different species as part of a single patent application. This high number (6) of patentably distinct species claimed is considered by itself sufficient to support the Examiner's finding of an undue burden if all of the claims are to be searched as part of a single patent application.
- c. Applicant's concern regarding the possible expenses in the filing of multiple patent applications do not refute the Examiner's finding of an undue burden in searching all six of the claimed species as part of a single patent application.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 6, 8, 10, 14-29, 35, 37, 39, and 43-54 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable

Art Unit: 2874

generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 27, 2006.

***Information Disclosure Statement***

3. The prior art documents submitted by Applicant(s) in the Information Disclosure Statement(s) ("IDS") filed on February 9, 2004 have all been considered and made of record (note the attached copy of form(s) PTO-1449).

***Specification***

4. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

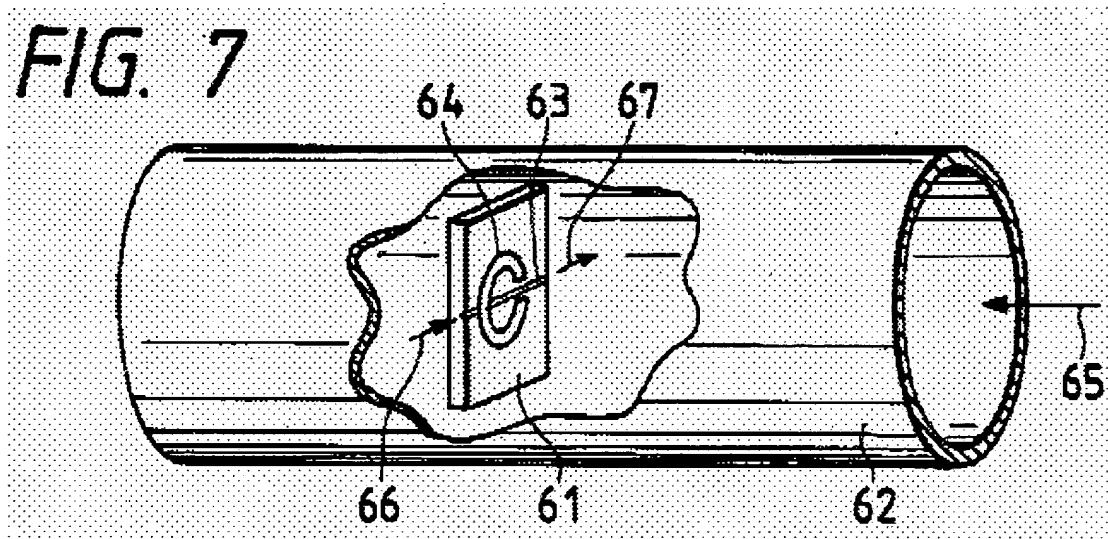
6. **Claims 1-5, 11-13, 30-34, 40-42, and 55 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 5,459,800 to Enokihara et al. ("Enokihara").**

*In re* claims 1, 30, and 55, Enokihara discloses an RF-lightwave modulator (Fig. 7) comprising:

a broken loop resonator 64, the broken loop resonator 64 having a gap therein;  
an input 62 providing an input signal 65 to drive the broken loop resonator,  
the broken loop resonator 64 generating an RF output signal in response thereof,

Art Unit: 2874

and an electric field connected across the gap receiving the RF output signal, the electric field modulating a lightwave 66 with the RF output signal to generate a RF-modulated lightwave 67. Figure 7 of Enokihara is reproduced below.



*In re* claims 2 and 31, the electric field provided by Enokihara acts as an electro-optic modulator (col. 7, lines 17-25).

*In re* claims 3 and 32, the input 62 comprises an RF transmission line.

*In re* claims 4 and 33, the broken loop resonator 64 comprises an RF transmission line.

*In re* claims 5 and 34, the input signal 65 is a RF input signal, and the input 62 receives and provides the RF input signal 65 when the input 62 is constructed from RF transmission line.

Art Unit: 2874

*In re* claims 11 and 40, the features claimed do not define any discernible device structure and are considered to be inherently present in Enokihara because Enokihara discloses all the structural features as claimed and appears to operate in substantially the same manner.

*In re* claims 12 and 41, the input 62, broken loop resonator 64, and optical modulator are disposed on a substrate 61.

*In re* claim 13 and 42, the recited limitation(s) are disclosed in col. 6, lines 62-64 of Enokihara.

***Allowable Subject Matter***

7. Claims 7, 9, 36, 38, and 56-58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

In the Examiner's opinion, claims 7, 9, 36, 38, and 56-58 each define a patentable improvement over the Enokihara invention. For example, Enokihara does not suggest coupling the ends of the broken loop resonator to the optical modulator with wires as recited by claims 7 and 36, or using a bias control circuit as recited by claim 9. By using the aforementioned claimed features, more precise control of the RF-modulated lightwave can be achieved.

Art Unit: 2874

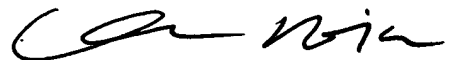
***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patent No. US 6,504,640 B2 discloses an optical modulator that also utilizes a broken loop resonator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Omar Rojas whose telephone number is (571) 272-2357. The examiner can normally be reached on Monday-Friday (12:00PM-8:00PM).

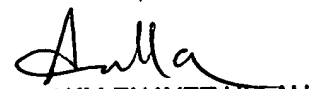
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick, can be reached on (571) 272-2344. The official facsimile number for regular and After Final communications is (571) 273-8300. The examiner's RightFAX number is (571) 273-2357.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Omar Rojas  
Patent Examiner  
Art Unit 2874

or  
May 30, 2006



AKM ENAYET ULLAH  
PRIMARY EXAMINER